



U.S. Application No. 10/807,139
Atty. Docket No. 2557-000215/US

AMENDMENTS TO THE CLAIMS

The following is a complete, marked up listing of revised claims with a status identifier in parentheses, underlined text indicating insertions, and strikethrough and/or double-bracketed text indicating deletions.

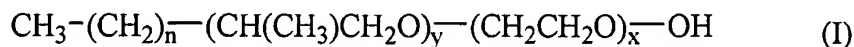
LISTING OF CLAIMS

1. (CURRENTLY AMENDED) An abrasive slurry composition for the chemical-mechanical polishing of a polysilicon layer formed over structures including silicon nitride comprising:

a carrier liquid;

abrasive particles; and

a non-ionic surfactant that selectively forms a passivation layer on exposed surfaces of the polysilicon layer wherein the non-ionic surfactant includes ethylene oxide-propylene oxide block copolymer alcohols ~~are~~ selected from a group consisting of a first group of alcohols represented by the formula I



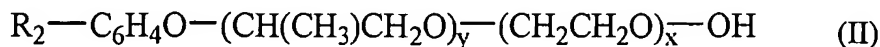
wherein

n is an integer satisfying the relationship $3 \leq n \leq 22$;

y is an integer satisfying the relationship $1 \leq y \leq 30$; and

x is an integer satisfying the relationship $1 \leq x \leq 30$;

and a second group of alcohols represented by the formula II



wherein

R₂ is -C₉H₁₉ or -C₈H₁₇.

2. (PREVIOUSLY PRESENTED) An abrasive slurry composition according to claim 1, further comprising:

a second surfactant, the second surfactant selectively forming a second passivation layer that will reduce a removal rate of silicon nitride or silicon oxide during the chemical-mechanical polishing.

3. (PREVIOUSLY PRESENTED) An abrasive slurry composition according to claim 1, wherein:

abrasive slurry includes a pH controller selected from the group consisting of KOH, NH₄OH, TMA, TMAH and TEA for maintaining a target slurry pH;
the target slurry pH is between about 7 and 12.

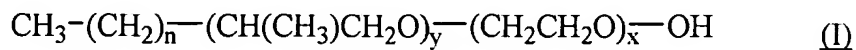
4. (CANCELED).

5. (CURRENTLY AMENDED) An abrasive slurry composition for the chemical-mechanical polishing of a polysilicon layer formed over structures including silicon nitride comprising:

a carrier liquid;

abrasive particles; and

a non-ionic surfactant that selectively forms a passivation layer on exposed surfaces of the polysilicon layer, ~~wherein~~ including an ethylene oxide-propylene oxide block copolymer alcohol selected from a group consisting of alcohols represented by the formula I



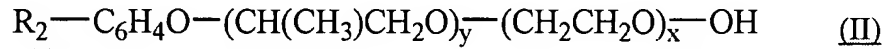
wherein

n is an integer satisfying the relationship $3 \leq n \leq 22$;

y is an integer satisfying the relationship $1 \leq y \leq 30$; and

x is an integer satisfying the relationship $1 \leq x \leq 30$;

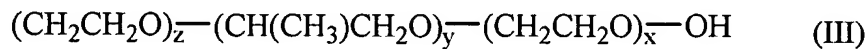
an ethylene oxide-propylene oxide block copolymer alcohol selected from a group consisting of alcohols represented by the formula II



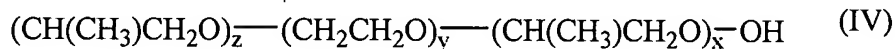
wherein

R₂ is -C₉H₁₉ or -C₈H₁₇.

an the ethylene oxide-propylene oxide-ethylene oxide tri-block polymers are selected from a group consisting of polymers represented by the formula III



and at the propylene oxide-ethylene oxide-propylene oxide tri-block polymers are selected from a group consisting of polymers represented by the formula IV



wherein

z is an integer satisfying the relationship $1 \leq z \leq 30$.

6. (PREVIOUSLY PRESENTED) An abrasive slurry composition according to claim 5, wherein:

z is an integer satisfying the relationship $5 \leq z \leq 30$.

y is an integer satisfying the relationship $5 \leq y \leq 30$; and

x is an integer satisfying the relationship $5 \leq x \leq 30$.

7. (ORIGINAL) An abrasive slurry composition according to claim 6, wherein:
the relationship $20 \leq z + y + x \leq 70$ is satisfied.

8. (PREVIOUSLY PRESENTED) An abrasive slurry composition according to claim 5, wherein:

z is an integer satisfying the relationship $10 \leq z \leq 30$.

y is an integer satisfying the relationship $10 \leq y \leq 30$; and

x is an integer satisfying the relationship $10 \leq x \leq 30$.

9. (ORIGINAL) An abrasive slurry composition according to claim 5, wherein:
the abrasive particles are silica, have an average size of less than about 1 μm and are about 5 to 30 wt% of the slurry composition;
the target slurry pH is between about 8 and 12; and
the non-ionic surfactant is at least 0.001 wt% of the abrasive slurry composition.
10. (ORIGINAL) An abrasive slurry composition according to claim 5, wherein:
the abrasive particles are silica, have an average size of less than about 100 nm and are about 10 to 20 wt% of the slurry composition;
the target slurry pH is between about 10 and 11; and
the non-ionic surfactant is between about 0.005 and 0.1 wt% of the abrasive slurry composition.
11. (ORIGINAL) An abrasive slurry composition according to claim 2, wherein:
the abrasive particles are silica, have an average size of less than about 1 μm and are about 5 to 30 wt% of the slurry composition;
the target slurry pH is between about 7 and 12;
the non-ionic surfactant is at least about 0.001 wt% of the abrasive slurry composition; and
the second surfactant includes an imine or amine compound and is between about 0.001 and 10 wt% of the abrasive slurry composition.

12-13. (CANCELED)

14. (CURRENTLY AMENDED) An abrasive slurry composition for the chemical-mechanical polishing of a polysilicon layer formed over structures including silicon nitride comprising:

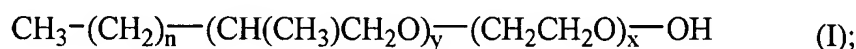
a carrier liquid;

abrasive particles; and

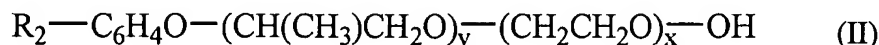
a non-ionic surfactant that selectively forms a passivation layer on exposed surfaces of the polysilicon layer, wherein

the non-ionic surfactant includes at least one surfactant selected from the group consisting of

ethylene oxide-propylene oxide block copolymer alcohols represented by the formula I



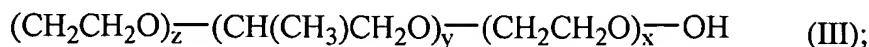
ethylene oxide-propylene oxide block copolymer aryl alcohols represented by the formula II



wherein

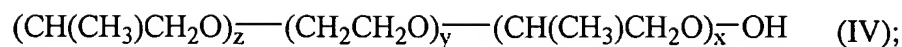
R_2 is $-\text{C}_9\text{H}_{19}$ or $-\text{C}_8\text{H}_{17}$;

and the non-ionic surfactant includes at least one surfactant selected from the group consisting of ethylene oxide-propylene oxide-ethylene oxide tri-block polymers represented by the formula III



and

propylene oxide-ethylene oxide-propylene oxide tri-block polymers represented by the formula IV



wherein

n is an integer satisfying the relationship $3 \leq n \leq 22$;

z is an integer satisfying the relationship $1 \leq z \leq 30$

y is an integer satisfying the relationship $1 \leq y \leq 30$; and

x is an integer satisfying the relationship $1 \leq x \leq 30$.

15. (PREVIOUSLY PRESENTED) An abrasive slurry composition according to claim 14, wherein:

z is an integer satisfying the relationship $5 \leq z \leq 30$.

y is an integer satisfying the relationship $5 \leq y \leq 30$; and

x is an integer satisfying the relationship $5 \leq x \leq 30$.

16. (ORIGINAL) An abrasive slurry composition according to claim 14, wherein:
the relationship $20 \leq z + y + x \leq 70$ is satisfied.

17. (PREVIOUSLY PRESENTED) An abrasive slurry composition according to claim 14, wherein:

z is an integer satisfying the relationship $10 \leq z \leq 30$.

y is an integer satisfying the relationship $10 \leq y \leq 30$; and

x is an integer satisfying the relationship $10 \leq x \leq 30$.

18-27. (CANCELED)

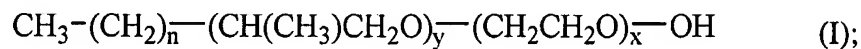
28. (CURRENTLY AMENDED) An abrasive slurry composition for the chemical-mechanical polishing of a polysilicon layer formed over structures including silicon nitride comprising:

a carrier liquid;

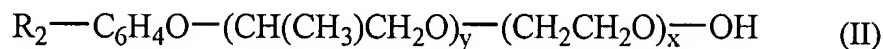
abrasive particles; and

a non-ionic surfactant that selectively forms a passivation layer on exposed surfaces of the polysilicon layer, wherein

the non-ionic surfactant includes at least ~~two~~ one surfactants selected from at least three of the four groups of alcohols consisting of a first ~~the~~ group consisting of ethylene oxide-propylene oxide block copolymer alcohols represented by the formula I



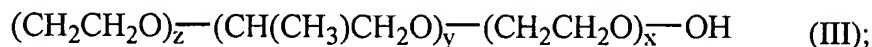
a second group of ethylene oxide-propylene oxide block copolymer aryl alcohols represented by the formula II



wherein

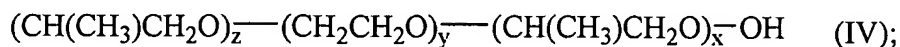
R_2 is $-\text{C}_9\text{H}_{19}$ or $-\text{C}_8\text{H}_{17}$;

a third group of ethylene oxide-propylene oxide-ethylene oxide tri-block polymer alcohols represented by the formula III



and

a fourth group of propylene oxide-ethylene oxide-propylene oxide tri-block polymer alcohols represented by the formula IV



wherein

n is an integer satisfying the relationship $3 \leq n \leq 22$;
z is an integer satisfying the relationship $1 \leq z \leq 30$
y is an integer satisfying the relationship $1 \leq y \leq 30$; and
x is an integer satisfying the relationship $1 \leq x \leq 30$.

29. (PREVIOUSLY PRESENTED) An abrasive slurry composition according to claim 28, wherein:

z is an integer satisfying the relationship $5 \leq z \leq 30$.
y is an integer satisfying the relationship $5 \leq y \leq 30$; and
x is an integer satisfying the relationship $5 \leq x \leq 30$.

30. (ORIGINAL) An abrasive slurry composition according to claim 28, wherein:
the relationship $20 \leq z + y + x \leq 70$ is satisfied.

31. (PREVIOUSLY PRESENTED) An abrasive slurry composition according to claim 28, wherein:

z is an integer satisfying the relationship $10 \leq z \leq 30$.
y is an integer satisfying the relationship $10 \leq y \leq 30$; and
x is an integer satisfying the relationship $10 \leq x \leq 30$.

32-38. (CANCELED)

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